1 C 8400-1

MOVING PEOPLE: Annual Review and Outlook

January 11, 1982

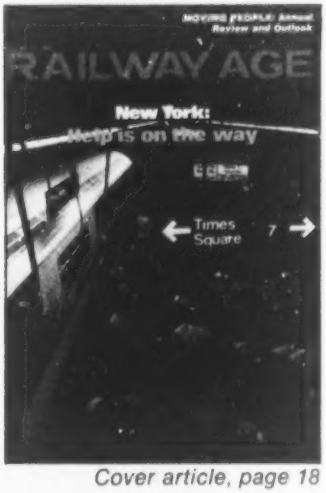
RAILWAY AGE

New York: Help is on the way

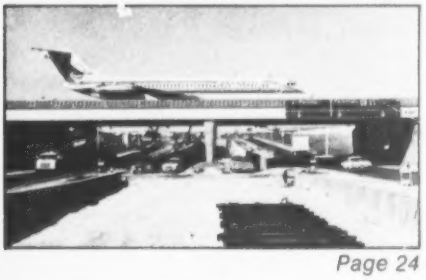
RG0372249 4MAR63 10304040F713 A
CONGRESSIONAL INFO SVC ***
SRI ACQUISITIONS ***
4520 EAST-WEST HWY #800
WASHINGTON DC 20014

RAILWAY AGE
January 11, 1982

FEATURES



Cover article, page 18



Page 24

Page 32

14 **Moving People: New year—new funding battles**
Federally-subsidized passenger trains—intercity, commuter, and transit—came out of last year's funding battles with only superficial scars. But the effort to slash federal aid, especially for transit, will continue in 1982.

18 **New York: Help is on the way**
The five-year, $7.9 billion capital program of the Metropolitan Transportation Authority has won final approval. The bulk will go for rail and rail-related projects, including $2.25 billion for new transit and commuter cars.

24 **O'Hare extension: More than just an airport line**
New developments are springing up all along the new 7.3-mile line because, one Chicago official points out, "developers see the ready labor market that good transportation makes available." First trains may run late this year.

27 **C&NW: Big savings from rebuilds**
Chicago & North Western bought 38 15-year-old GP40's from Conrail, rebuilt them at a cost of $325,000 apiece—and as a result expects 15 more years of reliable, fuel-efficient service. Estimated savings: $21,850,000.

30 **Griffin Wheel looks to the future**
During a "down" market, Griffin has invested several million dollars in a new locomotive wheel-hub finishing line at its Keokuk, Iowa, plant. The company sees a growing market for wheels machined to exact specs.

32 **Why are some railroads safer than others?**
Associate Editor John Armstrong takes a close look at three roads—Rio Grande, Santa Fe and Boston & Maine—that in recent years have ranked at or near the top in any listing of "safest" railroads.

NEWS

9 **Long-truck bill gains in Congress**
9 **Conrail recaptures crude oil movement**
9 **Raised markers at grade crossings?**
10 **BART seeking bids on 60-150 cars**
12 **A third nominee for the ICC**
12 **Ports and colliers: Is bigger better?**
44 **The Railroad Market**

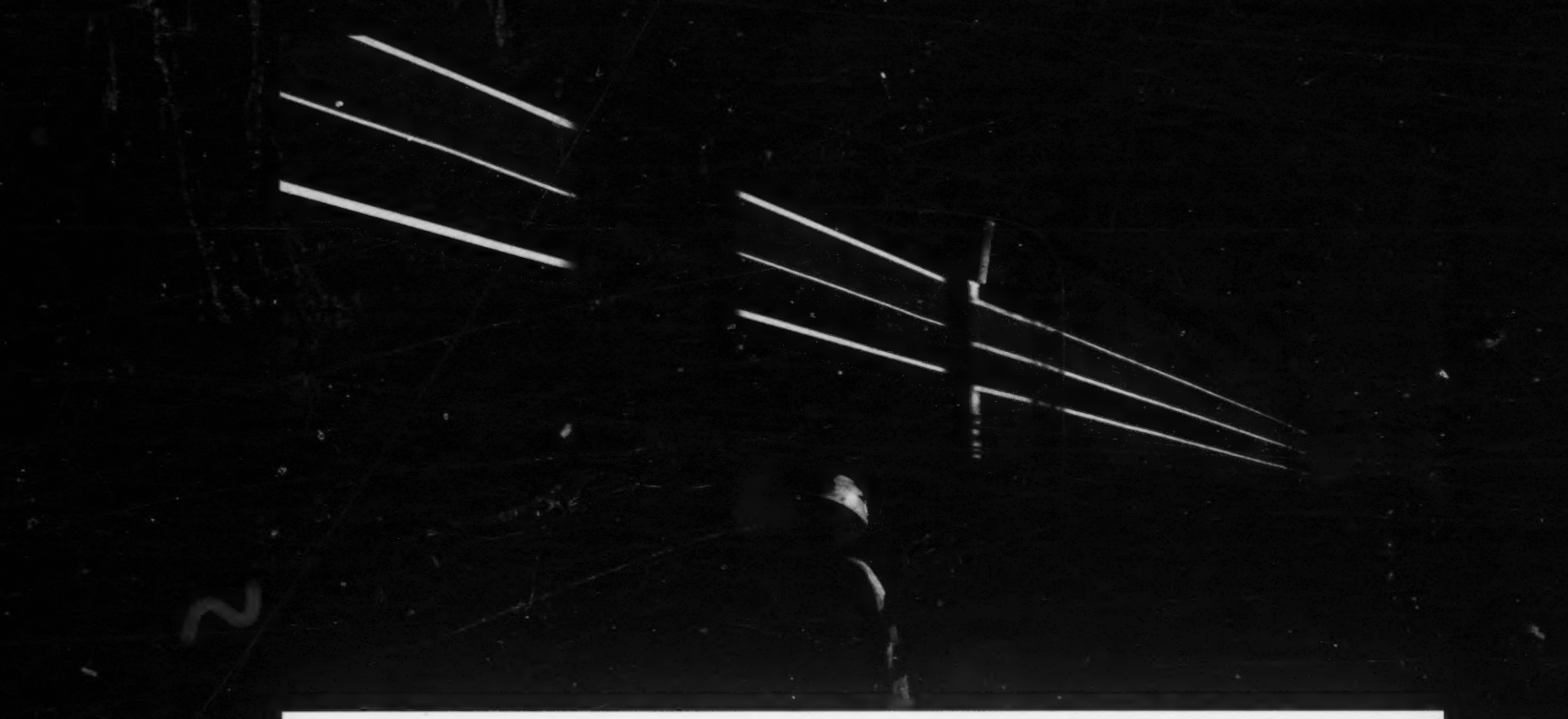
COMMENT

3 **Inside**
10 **Watching Washington**
12 **Lines on Labor**

DEPARTMENTS

28 **Revenues and expenses**
40 **People in the News**
40 **Associations**
41 **Transit**
41 **Suppliers**
42 **100 Years Ago**
42 **Advertising sales**
43 **Letters**
44 **Carloadings**
45 **Professional cards**
46 **Classified advertising**
47 **Guide to advertisers**
48 **Products Report**

COVER: Photo by Roy H. Blanchard



Moving people

New Year—new funding battles

"Amtrak faces the fight of its life as a hostile Adminstration comes to power... The transit funding picture is also clouded by the new conservatism."

—Railway Age, Jan. 12, 1981.

The only people in the rail passenger field who were surprised by the events of 1981 were those who didn't believe that Ronald Reagan meant what he said in his presidential campaign.

Amtrak *did* have to fight for its very life in 1981; and the clouds overhanging transit and commuter aid thickened.

Amtrak more or less won its fight (being forced finally to accept only a 10% reduction in its service, rather than being driven into a last-ditch Northeast Corridor line, which seemed to be the Administration's battle plan).

While transit took its lumps in the appropriations for FY 1982 (which ends Sept. 30), supporters could consider themselves lucky on one major point—that a bid to pass a five-year authorization failed. Almost certainly it would have locked in deep cuts for operating and capital assistance and assured an indefinite deferral of new rail starts that would have been hard to undo later. Instead, political squabbling made passage of a new authorizing bill impossible, and what emerged was simply an appropriation for FY 1982 under the old authorizing legislation. That bill expires this year, and again there will be a strong push for a multi-year authorization.

● **New cutbacks for Amtrak?** As new funding battles shape up, there is no room for complacency—certainly not on the part of Amtrak.

True, there does exist a FY 1983 Amtrak authorization of $788 million—enough to carry Amtrak at its current level of operations with about $100 million left over for capital needs. (New low-level cars for use in the East, and track work in Michigan and elsewhere, are prime candidates for that money, if it materializes.) But an authorization does not a budget make, and already there are rumors that the Department of Transportation might push for an appropriation of only $600 million or less. New service cutbacks could be the result.

A plus for Amtrak in this year's struggle, as it was in 1981, will be the American public's reluctance to let passenger trains die. Another ingredient in last year's success for Amtrak was its announced intention to cut costs and increase revenues. That effort will continue to play an important role in generating public support.

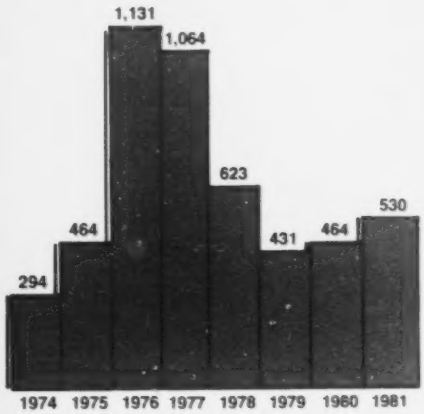
Since last summer, Amtrak has been assembling a corporate development arm that will act to carry out President Alan S. Boyd's plan to diversify earnings through development of Amtrak's right of way and stations, and by accepting contract work at the railroad's Beech Grove, Ind., shops. Meanwhile, Amtrak's budget has been pruned by reductions in management staff, elimination of full dining car service, and other measures. The replacement or overhaul of virtually its entire fleet of cars and locomotives, now nearly complete, will also be an important factor in keeping costs down.

In a move that will not displease conservatives, Boyd is pushing for private sector backing of a plan to bring Japanese Bullet trains to the United States. Formation of a Japanese-American Railway Congress last summer kicked off a study of four routes that might see the construction of entirely new passenger-carrying, high-speed railroads with backing from Japanese railway interests.

● **Passenger trains and politics.** The timing of an election year will also be critical. Because the fiscal year ends Sept. 30, any cutbacks could result in the discontinuance of trains about one month before elections. That is something very few congressmen want to face. Indeed, last year there was another in the virtually annual demonstrations of the importance of passenger trains to members of Congress. Though the Washington-Chicago Cardinal failed to meet congressionally-established per-

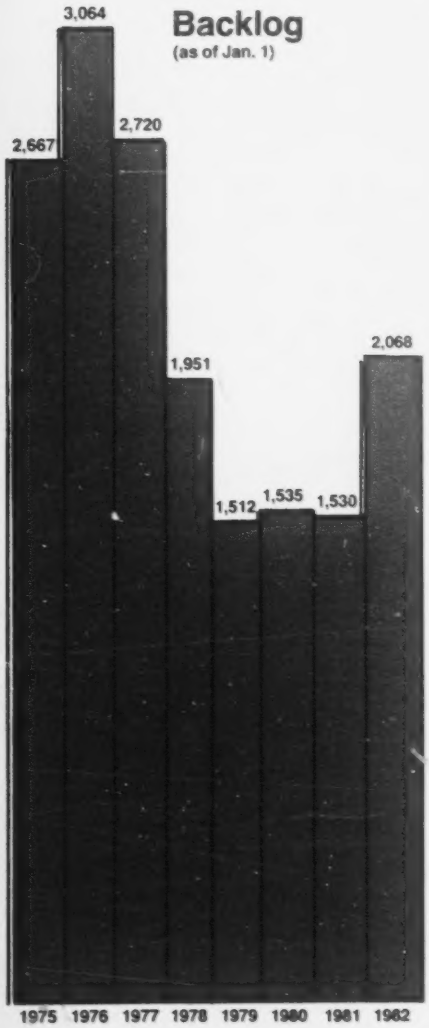
Passenger car market at a glance

Deliveries



Backlog

(as of Jan. 1)



These cars were delivered in 1981:

Purchaser	No. of Cars	Type	Builder
Amtrak	83	Intercity	Pullman Standard
	17	Intercity	Budd
Atlanta (MARTA)	34	Rapid Transit	Societe Franco-Belge
Boston (MBTA)	120	Rapid Transit	Hawker-Siddeley
Chicago (CTA)	14	Rapid Transit	Budd
Cleveland (GCRTA)	20	Light Rail	Breda
New Jersey (NJDOT)	26	Commuter	GE
New York (MTA-Conrail)	10	Commuter	Budd
Philadelphia-Camden (PATCO)	2	Rapid Transit	Canadian Vickers
Philadelphia (SEPTA)	67	Light Rail	Kawasaki
	2	Rapid Transit	Kawasaki
Toronto (TTC) (purchased through UTDC)	85	Light Rail	Hawker-Siddeley
VIA Rail Canada	50	Intercity	Bombardier
Total	**530**		

Work goes forward on this undelivered backlog:

Purchaser	No. of Cars	Type	Builder
Amtrak	134	Intercity	Budd
Atlanta (MARTA)	2	Rapid Transit	Societe Franco-Belge
Baltimore (MdMTA)	72	Rapid Transit	Budd
Buffalo (NFTA)	33	Light Rail	Tokyu Car
Calgary	3	Light Rail	Siemens DuWag
Chicago (CTA)	586	Rapid Transit	Budd
Chicago-Northern Indiana (RTA-NITA-CSS&SB)	44	Commuter (self-propelled)	Sumitomo (Nippon Sharyo)
Cleveland (GCRTA)	28	Light Rail	Breda
Miami (MDCTA)	136	Rapid Transit	Budd
Miami (DCM)	12	People mover	Westinghouse Electric/ Kawasaki
New Jersey (NJDOT)	33	Commuter	GE
New Jersey (NJ Transit)	117	Commuter	Bombardier
New York (MTA-Conrail)	60	Commuter	Budd
New York (MTA-LIRR)	70	Commuter	Budd
Philadelphia (SEPTA)	74	Light Rail	Kawasaki
	123	Rapid Transit	Kawasaki
Portland (Tri-County MTD)	26	Light Rail	Bombardier
San Diego (MTDB)	10	Light Rail	Siemens DuWag
Scarborough (Toronto)	24	Light Rail	UTDC/Metro Canada
Toronto (GO Transit)	71	Commuter	Hawker-Siddeley
Vancouver	114	Light Rail	UTDC/Metro Canada
Washington (WMATA)	296	Rapid Transit	Breda
Total	**2,068**		

Orders likely to develop in 1982:

Purchaser	No. of Cars	Type
Atlanta (MARTA)	30	Rapid Transit
Boston (MBTA)	50-100	Light Rail
Calgary	35	Light Rail
Cleveland (GCRTA)	60	Rapid Transit
Detroit (SEMTA)	13	Light Rail
Edmonton	8	Light Rail
New York (NYCTA)	1,150	Rapid Transit
New York (MTA-Conrail)	82	Commuter
New York (MTA-LIRR)	146	Commuter
Pittsburgh (PAT)	55	Light Rail
San Francisco (BART)	4	Rapid Transit (prototypes)
San Francisco (Muni)	22-30	Light Rail
Toronto (GO Transit)	15-25	Commuter
Toronto (TTC)	24	Light Rail
	60	Rapid Transit
Total	**1,754-1,822**	

The five year (1983-1988) outlook:

Purchaser	No. of Cars	Type
Atlanta (MARTA)	0-70	Rapid Transit
Calgary	85	Light Rail
Connecticut (CDOT)	100	Commuter
Detroit (SEMTA)	17-45	Commuter
	75	Light Rail
Edmonton	12-40	Light Rail
Honolulu	85	Rapid Transit
Los Angeles (SCRTD)	120-132	Rapid Transit
New Jersey (NJ Transit)	0-37	Commuter
New York (NYCTA)	226	Rapid Transit
New York (MTA-Conrail)	44	Commuter
Philadelphia (SEPTA)	50	Commuter
	15	Rapid Transit
	30	Light Rail
Sacramento Transit Dev. Agency	26-28	Light Rail
San Francisco (BART)	60-150	Rapid Transit
San Francisco (Muni)	12	Light Rail
Toronto (TTC)	81	Light Rail
	66	Rapid Transit
Total	**1,104-1,371**	

"What we feel to be responsible approach is a block grant concept where operators receive funds with few strings."

formance criteria and was discontinued in October, it was soon a subject of horse trading over various issues between the Administration and powerful Senate minority leader Robert C. Byrd (D.-W. Va.). In the end Byrd won, over the stiff opposition of Sen. Bob Packwood (R.-Ore.). The Cardinal was scheduled to resume service on a three times a week basis Jan. 8.

Another political debt was repaid to Sen. Mark Andrews (R.-N.D.). Andrews fought hard last year to maintain Amtrak's budget at $735 million through a long series of votes that kept the system's fate in uncertainty until early December. With full funding now virtually assured through FY 1982, Amtrak decided to retain the Empire Builder, an important train to Andrews' constituents, on a daily basis following the Christmas rush. Normally it reverts to thrice-weekly operation during the off-season.

Supporters of federal subsidies for transit and commuter operations will also be doing some hard politicking as the Administration this year makes another effort to push through a multi-year authorization for the Urban Mass Transportation Administration.

Such legislation could spell hard times for operating agencies if the Administration is able to incorporate the big funding cuts it has proposed. Again, an election year might work against the Administration: passage of a long term authorization that slices deeply into city transportation programs won't make urban constituents happy. Democrats and some urban Republicans will work hard to restrict the next UMTA authorization to 1983 only, hoping that in following years, with perhaps a new and less conservative Administration in power, they can rebuild some of the programs now being threatened.

● **100 billion pennies?** One hope held out by Jack R. Gilstrap, executive vice president of the American Public Transit Association, is that the Administration's proposed increase in the federal gasoline tax will include a penny for transit. One hundred billion pennies should be collected this way, compensating for some of the proposed transit cuts. Late in 1981 the Office of Management and Budget was reportedly talking about an appropriation of $2.9 billion for FY 1983. In 1981 UMTA was funded for $4 billion. If that shortfall of more than $1 billion could be recouped through gas tax revenues, Gilstrap thinks the money could be applied to restore capital and non-labor related maintenance programs.

"Cloudy" is about the best forecast that can be made right now for the chances of success for the gas tax. It is likely to become embroiled in a wide-ranging debate, including the "competitive equity" issue between highways and railroads. And even if it is approved, of course, there are no guarantees that part of it would be earmarked for transit.

● **Making a case for transit—again.** Two years ago there was no need to talk of trying to restore funding to UMTA. "We had come to feel that transit's case had been made," notes APTA's Gilstrap. That was before Secretary of Transportation Drew Lewis and UMTA Administrator Arthur Teele told transit officials that a healthy economy was as vital to transit as it was to any group—and that the only way to pump vitality back into the economy was to cut government spending for many programs, including transit. Suddenly, says Gilstrap, it has become obvious that "it's important to keep the case for transit before the public."

APTA has announced it will launch a much more aggressive lobbying campaign. If the Adminstration wants to talk about national priorities, says Gilstrap, then it would do well to remember that transit is vital to the viability of large cities. "If the cities don't work, the nation doesn't function properly, and if that doesn't happen then the President's recovery program is doomed."

One big problem, a Senate staff member says, is that "at a time when the pie is getting smaller, everybody tends to jump in to grab for a piece. But that's just the thing we shouldn't be doing now. They [APTA] have to build a broad coalition with the cities for effective action."

Gilstrap says APTA has been working for several months to develop a consensus within the transit community—to arrive at a joint policy that both large and small systems can support. "Essentially what we feel to be a responsible approach is a block grant concept where local operators receive funds with few strings attached," he says.

UMTA's Teele is willing to back such a funding vehicle—but he wants to attach some important strings.

Teele is opposed to providing operating and maintenance assistance that will support labor costs in any form. He has demonstrated that a strong correlation exists between rising federal subsidies and rising labor costs (*RA*, Aug. 12, 1981, p. 28). Since 1974, when federal operating subsidies were instituted, farebox income decreased 14% as federal funds rose to 15% of transit revenues. At the same time, agreements negotiated with transit unions kept wages ahead of the consumer price index and ahead of wages for police, firemen, and other public workers.

Teele is convinced—and Gilstrap doesn't argue the point—that the availability of federal money took from transit managers much of the incentive to enter into tough negotiations with employees.

Managers point to another federal policy that promotes high wage settlements—the so-called 13c regulations. Under these rules, federal subsidies can be held back until a transit agency reaches an agreement with its union for wages and work rules. Operators claim their grants have been held hostage by the unions until negotiators accept too-generous settlements. Here the agencies apparently have Teele's sympathy. He has pledged to work with the Department of Labor to find an administrative approach to modifying the 13c regulations.

Though the regulations could be changed through congressional action, most do not favor that course. Democrats are sensitive to moving on what shapes up as an anti-labor position, and there is general reluctance to further complicate the anticipated battle over a long-term authorization. As one aide noted, "It's the kind of thing that can kill a piece of legislation."

● **A role for the private sector?** The Administration's position is that government should allow the private sector more latitude in solving many of the problems that have until recently been seen as the responsibility of the state. For transit, this philosophy has been translated into statements by Teele and others that private business could fill in some of the voids created as federal funds start to dry up.

That's fine, says Gilstrap, but what about transit's competition—the private automobile, which benefits from the largest public subsidy of all? He points to a recent move by the Administration to allow federal employees free parking spaces in the District of Columbia as "evidence of a bias toward autos."

Gilstrap acknowledges that there is a role for the private sector in providing transit—but a limited role. "The word 'skimming' is an appropriate one when you talk about what private industry can do," he says. "Most private carriers want to pick and choose the best routes." Conversely, he adds, "Very few of our transit systems have authority to develop real estate they own or to engage in the kind of service private operators find profitable."

His proposal: "Let's go back and examine the private system in total. Let's allow the transit systems to operate like private businesses." ■

A RAILWAY AGE SERVICE PAGE

REVENUES AND EXPENSES OF RAILWAYS
Third quarter figures of calendar year 1981

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

		Operating revenues			Operating expenses									Operating ratio		Income after fixed charges		1981 Net Ry. operating income	Net income	
							Way & structures			Equipment										
		Freight	Other	Total 1981	Total 1980	Total 1981	Total 1980	1981 Deprec.	Total 1981	Total 1980	1981 Deprec.	Total 1981	Total 1980	1981	1980	1981	1980		1981	1980
Amtrak	3 mos.		355,621	355,621*	275,206*	26,545	31,694	2,866	93,894	96,548	20,219	333,849	325,700	93.87	118.34	948	(57,192)	21,744	948	(57,192)
	9 mos.	—	930,369	930,369*	809,986*	67,432	64,283	5,064	266,711	262,575	54,381	971,821	875,717	104.45	108.11	(93,290)	(88,521)	(41,448)	(93,290)	(88,521)
Atchison, Topeka & Santa Fe	3 mos.	600,413	13,548	613,961	570,395	107,287	92,359	3,992	128,916	116,521	21,555	566,560	501,131	92.3	87.9	39,027	64,629	39,915	31,289	49,380
	9 mos.	1,765,859	39,530	1,805,389	1,612,067	303,723	270,989	11,269	385,627	345,589	63,847	1,669,990	1,477,501	92.5	91.7	114,404	118,788		84,217	91,964
Baltimore & Ohio	3 mos.	269,848	11,392	281,240	219,867	65,134	53,226	1,784	67,286	45,023	7,058	266,566	216,210	94.78	98.33	11,014	(1,869)	13,467	9,212	(2,484)
	9 mos.	749,696	27,802	777,498	691,301	162,063	138,906	5,283	179,753	153,778	22,543	741,251	658,608	95.33	95.27	50,558	21,864	24,450	37,028	20,478
Bessemer & Lake Erie	3 mos.	32,979	2,092	35,071	31,374	4,382	2,952	685	4,084	3,211	1,232	22,945	17,075	65.42	54.42	14,805	14,440	7,619	10,297	7,243
	9 mos.	81,323	5,408	86,731	83,281	11,660	11,188	2,049	7,256	12,483	3,896	60,341	57,153	69.57	68.62	32,106	28,538	13,259	18,971	14,991
Boston & Maine	3 mos.	28,763	1,273	30,036	28,680	7,366	6,094	280	7,849	7,418	359	31,793	28,727	105.84	100.16	(465)	592	(1,687)	(658)	(1,740)
	9 mos.	87,085	4,472	91,557	85,706	19,301	16,306	843	23,611	21,992	1,079	93,054	85,222	101.63	99.43	1,873	2,128	(1,292)	1,290	(5,727)
Burlington Northern	3 mos.	933,491	20,728	954,219	779,802	202,099	174,073	5,667	184,060	163,732	18,282	874,721	729,932	91.66	93.60	99,454	60,538	45,967	65,894	39,919
	9 mos.	2,740,771	67,359	2,808,130	2,150,805	535,651	418,957	16,768	583,469	459,236	54,789	2,593,295	1,988,519	92.34	92.45	269,574	197,270	136,042	190,694	157,911
Chesapeake & Ohio	3 mos.	297,709	16,829	314,538	228,849	53,649	43,654	1,894	54,812	39,973	3,696	245,749	201,425	78.13	88.01	80,047	22,652	45,611	56,804	12,698
	9 mos.	710,554	33,722	744,286	693,284	145,761	123,739	5,655	162,568	141,332	10,864	689,331	612,141	92.61	88.29	110,891	104,321	30,344	86,345	75,886
Chicago & North Western	3 mos.	218,499	26,316	244,815	243,943	65,251	53,129	1,227	57,878	63,013	4,426	253,144	237,183	50.29	47.61	(13,992)	1,245	(4,971)	(9,871)	1,208
	9 mos.	680,226	75,650	755,876	675,397	167,537	141,070	3,480	174,113	174,068	13,134	741,832	668,865	45.19	46.65	(890)	(7,967)	18,278	8,183	(8,077)
Chicago, Milwaukee, St. Paul & Pac.	3 mos.	88,781	15,347	104,128	92,001	34,454	26,204	1,695	27,086	27,193	4,141	125,279	115,112	120.31	125.12	7,793	(25,268)	(21,171)	3,276**	(50,642)
	9 mos.	270,562	39,640	310,202	284,384	68,556	68,719	3,063	94,043	105,502	12,058	356,497	374,114	114.92	131.55	187,059	(77,777)	(47,316)	180,887**	(171,014)
Clinchfield	3 mos.	29,728	301	30,029	22,891	5,170	3,819	112	3,807	3,161	984	20,907	15,958	69.6	69.7	3	4	9,640		
	9 mos.	77,058	756	77,814	56,170	13,980	11,184	334	11,481	9,842	2,949	58,166	47,326	74.8	71.5	11	9	21,227		
Colorado & Southern	3 mos.	40,124	550	40,674	32,691	9,407	11,901	70	9,816	7,768	702	39,136	35,695	96.21	109.19	10,158	702	1,063	9,683	1,259
	9 mos.	113,932	1,686	115,618	93,386	23,615	22,599	202	27,427	21,499	2,116	110,373	92,145	95.46	98.67	23,454	13,797	3,899	22,108	15,469
Conrail	3 mos.	851,499	170,189	1,021,688	892,268	236,330	219,286	6,160	248,090	253,147	35,753	1,043,947	1,029,369	102.18	115.37	(33,643)	154,365		(3,272)	(153,369)
	9 mos.	2,545,751	509,057	3,054,808	2,804,736	574,628	582,884	17,959	788,579	795,434	106,241	3,128,507	3,125,535	102.41	111.44	(104,541)	362,709	(71,229)	(102,180)	(360,398)
Delaware & Hudson	3 mos.	29,171	1,317	30,488	28,014	6,343	6,796	152	8,144	7,820	1,262	32,559	30,605	106.8	109.2	(4,645)	(3,315)	(1,973)	(4,645)	(3,315)
	9 mos.	85,974	3,685	89,659	86,662	16,563	15,996	440	25,185	25,193	2,533	95,697	89,857	106.7	103.7	(11,465)	5,223	—	(11,465)	(5,223)
Denver & Rio Grande Western	3 mos.	85,752	1,636	87,388	72,328	16,442	11,970	604	13,766	10,701	3,011	75,543	59,347	86.44	82.05	12,388	11,742	6,620	7,170	6,945
	9 mos.	246,228	4,459	250,687	208,411	45,760	35,232	1,852	38,508	32,310	9,803	216,395	177,696	86.32	85.26	33,577	26,761	20,200	19,526	16,748
Detroit, Toledo & Ironton	3 mos.	20,563	616	21,179	15,030	5,872	3,391	84	5,650	5,928	775	21,880	18,870	103.3	125.5	(1,355)	(3,794)	(787)	(1,355)	(3,794)
	9 mos.	63,517	2,341	65,858	53,657	12,802	9,192	428	18,102	18,390	3,030	65,014	58,284	98.7	108.6	(1,583)	(4,989)	864	(1,583)	(4,771)
Duluth, Missabe & Iron Range	3 mos.	40,108	521	40,629	27,440	9,329	6,252	873	3,173	3,161	718	26,355	19,624	54.86	74.14	15,874	8,488	6,923	8,647	4,382
	9 mos.	87,467	2,343	89,810	72,737	21,737	19,263	2,617	9,678	6,378	2,132	66,586	55,311	71.51	76.04	26,080	20,036	10,422	14,326	10,527
Elgin, Joliet & Eastern	3 mos.	16,544	11,840	28,384	21,381	4,256	3,318	194	4,755	2,368	1,832	25,607	20,263	90.21	94.77	4,341	2,716	336	1,900	1,643
	9 mos.	51,358	35,257	86,615	82,465	11,062	10,713	581	11,813	11,628	5,483	73,095	72,800	84.39	88.28	17,953	15,930	4,883	9,316	8,794
Florida East Coast	3 mos.	23,793	654	24,447	23,231	7,093	5,070	238	3,897	4,709	1,200	22,244	18,340	91.0	78.9	3,570	7,952	890	2,257	5,115
	9 mos.	75,245	1,728	76,973	69,116	20,371	14,195	707	11,840	11,943	3,593	67,572	52,750	87.8	79.1	14,338	22,185		9,591	14,400
Ft. Worth & Denver	3 mos.	48,789	1,220	50,009	35,351	8,777	5,873	88	9,335	9,213	137	37,044	30,552	74.07	86.42	13,542	5,411	7,061	7,638	3,828
	9 mos.	129,933	2,809	132,742	102,321	22,134	16,235	257	26,970	25,349	409	105,578	86,231	79.53	84.27	27,848	16,397	16,315	16,999	10,786
Grand Trunk Western	3 mos.	50,455	2,394	52,849	41,199	8,683	9,011	312	11,109	9,587	718	54,293	48,555		117.9	(2,319)	(8,189)	(674)	(1,554)	(6,887)
	9 mos.	162,019	8,030	170,051	141,248	23,951	21,897	1,157	35,210	32,298	3,712	168,093	148,355		105.0	(842)	(7,396)		(1,198)	(4,471)

Illinois Central Gulf	3 mos.	236,287	21,420	257,707	230,758	55,985	53,368	1,959	71,108	69,200	7,292	266,922	250,395	103.6	108.5	(17,989)	(20,461)	7,493	(16,668)	(18,945)
	9 mos.	714,452	60,423	774,875	713,949	157,672	140,412	5,678	211,830	197,523	21,987	789,586	730,366	101.9	102.3	(27,768)	(31,590)	11,137	(25,739)	(29,629)
Kansas City Southern	3 mos.	76,989	4,037	81,026	69,717	17,289	14,531	755	17,978	15,780	4,459	70,409	61,026	43.5	43.5	10,247	7,964	–	7,516	5,480
	9 mos.	220,778	11,345	232,123	203,297	46,802	36,099	2,260	51,076	47,680	12,571	202,937	177,356	42.2	42.2	27,273	24,621	–	20,410	17,749
Long Island	3 mos.	4,472	98,016	102,488	83,424	21,847	19,392	825	25,579	21,203	1,966	108,893	94,012	106.3	112.7	(6,674)	(10,821)	5,372	(6,674)***	(10,821)
	9 mos.	14,988	79,073	284,935	260,760	61,365	56,053	2,476	71,370	58,418	5,073	313,219	276,954	109.9	109.3	(28,964)	(16,954)	–	(28,964)***	(16,954)
Louisville & Nashville	3 mos.	318,217	6,141	324,358	260,639	58,620	45,758	1,542	66,857	57,080	10,654	286,839	243,154	88.4	93.3	32,080	11,230	34,595	27,787	9,863
	9 mos.	925,620	17,578	943,198	785,354	161,727	133,048	4,633	202,896	183,855	31,657	851,033	742,262	90.2	94.5	72,158	27,404	86,568	62,740	29,946
Missouri-Kansas-Texas	3 mos.	65,091	3,725	68,816	53,606	14,750	10,230	244	17,258	15,455	895	63,822	52,509	92.74	97.95	2,880	(298)	6,143	3,880	(298)
	9 mos.	194,179	11,379	205,558	156,609	39,050	25,346	732	55,120	46,031	2,689	189,689	149,434	92.28	95.41	8,547	2,097	19,334	11,547	2,597
Missouri Pacific	3 mos.	460,661	13,405	474,066	418,021	88,002	68,650	2,483	104,902	91,654	15,981	420,312	368,378	88.66	88.12	48,548	38,969	42,213	34,979	26,165
	9 mos.	1,384,418	39,802	1,424,220	1,232,931	230,245	179,759	7,354	316,095	278,400	46,461	1,243,365	1,077,351	87.30	87.38	164,217	129,994	137,269	113,468	89,814
Norfolk & Western	3 mos.	481,967	19,683	501,650	371,676	83,577	68,518	3,508	74,420	69,424	13,870	356,907	302,508	71.1	81.4	160,443	75,261	79,961	92,712	43,589
	9 mos.	1,246,682	47,031	1,293,713	1,140,350	219,751	190,823	10,379	208,766	211,204	41,273	988,818	912,450	76.4	80.0	343,056	250,981	–	197,538	150,973
Pittsburgh & Lake Erie	3 mos.	23,174	1,306	24,480	19,896	4,033	3,738	36	2,088	2,800	258	18,001	17,715	73.53	89.03	7,227	(924)	2,622	22,911	(993)
	9 mos.	59,382	4,062	63,444	61,381	10,527	9,824	102	8,317	5,338	744	54,531	48,209	85.95	78.54	5,413	3,572	4,684	20,715	2,468
St. Louis Southwestern	3 mos.	94,942	1,467	96,409	78,462	16,338	13,964	473	19,978	14,677	6,085	84,248	69,805	87.38	88.96	9,548	6,437	8,163	5,550	5,180
	9 mos.	284,080	4,551	288,631	219,009	49,594	36,263	1,527	52,562	37,541	18,418	252,000	195,853	87.30	89.42	30,599	18,833	25,897	19,865	14,001
Seaboard Coast Line	3 mos.	318,200	9,527	327,727	297,691	63,388	46,443	2,164	78,644	66,758	9,828	311,974	263,494	95.2	88.5	54,227	50,064	14,180	52,487	46,572
	9 mos.	969,294	29,657	998,951	899,871	177,248	145,619	6,804	234,580	208,636	28,930	924,720	814,273	92.6	90.5	159,704	133,894	68,729	153,873	125,519
Soo Line	3 mos.	83,841	1,398	85,239	79,245	25,745	18,506	384	14,906	13,329	2,080	76,395	66,401	89.6	83.8	11,532	12,173	5,386	7,917	8,860
	9 mos.	240,323	4,308	244,631	230,563	57,468	46,853	1,136	44,026	43,700	6,145	208,405	195,655	85.2	84.9	39,786	34,785	22,514	25,418	24,004
Southern	3 mos.	454,181	10,113	464,294	396,073	83,293	71,598	4,522	87,320	70,939	20,388	383,363	333,758	82.56	84.26	75,548	54,635	55,052	48,341	36,231
	9 mos.	1,310,310	29,591	1,339,901	1,208,103	208,857	204,956	13,548	247,682	218,087	59,552	1,079,820	991,278	80.58	82.05	248,678	200,026	175,423	159,975	136,787
Southern Pacific	3 mos.	541,509	16,757	558,266	519,875	89,020	70,911	4,790	150,006	128,630	21,549	566,431	500,903	101.46	96.35	(8,830)	19,223	4,852	4,187	17,513
	9 mos.	1,664,571	50,052	1,714,623	1,518,463	264,992	196,581	14,739	435,923	394,642	64,770	1,697,215	1,497,032	98.98	98.58	16,088	13,502	26,843	25,938	12,143
Union Pacific	3 mos.	515,483	8,582	523,065	509,404	89,554	71,031	3,081	100,009	92,108	24,434	457,014	422,171	87.4	82.9	54,179	73,807	–	42,711	57,559
	9 mos.	1,575,471	23,180	1,598,652	1,468,618	252,200	228,518	9,038	304,438	280,826	73,405	1,367,197	1,267,627	85.5	86.3	193,784	163,698	167,271	129,388	124,072
Western Maryland	3 mos.	22,421	754	23,175	24,056	7,126	6,079	194	2,661	2,984	1,592	20,532	22,099	88.59	91.86	3,157	1,617	1,608	2,113	1,375
	9 mos.	63,589	2,722	66,311	68,579	17,325	15,796	581	7,735	9,332	4,801	57,786	60,094	87.14	87.62	8,932	9,271	4,973	5,354	6,217
Western Pacific	3 mos.	47,115	552	47,667	50,502	8,941	6,764	70	12,017	10,229	1,761	52,776	46,204	110.7	91.5	10,947	4,527	(6,729)	9,286	3,797
	9 mos.	141,840	1,674	143,514	136,185	23,675	17,870	263	33,626	31,795	5,108	149,058	134,389	103.9	96.7	10,572	3,664	(7,095)	8,901	2,982

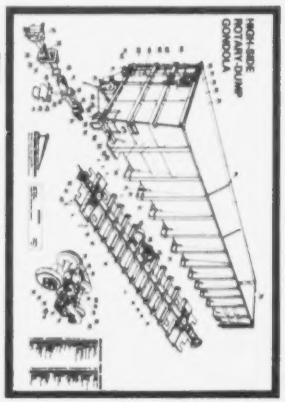
* Includes subsidies

** Includes real estate sales

*** Excludes approximately $70 million possible surcharge revenue refund and related interest currently pending appeal

CHARTS

Full, clear, detailed views show all principal parts



- ☐ MODERN BOXCAR 50'6" Cushion Underframe 22x35
- ☐ ALL PURPOSE FLATCAR TTX TOFC/COFC 23x35
- ☐ GONDOLA CAR 100 Ton 23x27
- ☐ MECHANICAL REFRIGERATION CAR 18x22
- ☐ STANDARD BOXCAR 40', 100,000 lb. 23x29
- ☐ COVERED HOPPER CAR 22x30
- ☐ TANK CAR, INSULATED HEATER COILS 22x35
- ☐ PASSENGER CAR LIGHTWEIGHT, STREAMLINED 14x22
- ☐ PASSENGER CAR—AIR CONDITIONED, CHAIR 18x35
- ☐ TANK CAR—GENERAL SERVICE 18x20
- ☐ TANK CAR ANATOMY 18x22
- ☐ GENERAL BOXCAR RAIL BOX TYPE 27x30
- ☐ COVERED HOPPER CENTER FLOW* 18x20
- ☐ OPEN TOP HOPPER CAR 22x33
- ☐ BATHTUB CAR 21x33
- ☐ HIGH-SIDE, ROTARY-DUMP GONDOLA 21x31
- ☐ GP-9 LOCOMOTIVE CHART—General arrangement 21x26
- ☐ SD40-2 LOCOMOTIVE CHART 21x28

$3.95 each
25% discount 10 or more

Enclosed is $_____

Name _____

Address _____

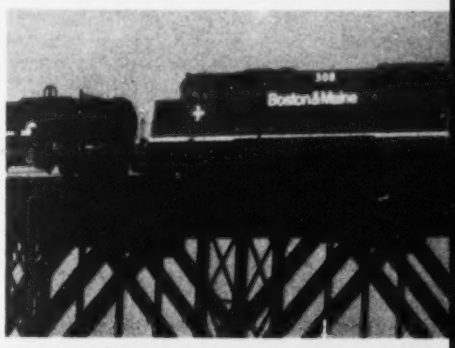
City _____ State _____ Zip ____

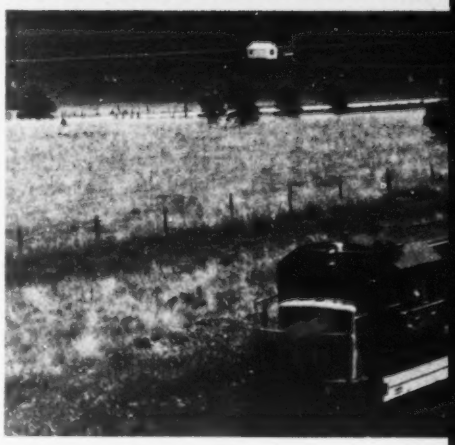
Railroad _____ Title _____

THE RAILWAY EDUCATIONAL BUREAU
1809 Capitol Avenue, Omaha, Nebraska 68102

Why are some railroads safer than

Their operating characteristics are dissimilar—but D&RGW, Santa Fe, and B&M have one thing in common: They are consistently at or near the top of any list of "safest" roads.





By JOHN ARMSTRONG,
Associate Editor

No one is fully comfortable talking about a good safety record—there's always a "knock on wood" realization that in the twinkling of an eye a combination of events and circumstances can lead to a wreck of proportions sufficient to tarnish the best of records.

Over the last two years, however, the collective record of railroads in the United States has been improving to the extent that *not* talking about it could represent a serious gap in appreciating the current state of the art. Now as always, there are innumerable ways of massaging accident and casualty statistics which already include inevitable aspects of arbitrariness—at any given time, some well-established indicators may be pointing in different directions. Nevertheless, current trends are so universally toward significantly improved rates as to prompt a closer look for reasons why.

Most front-page in character is the *number* of train accidents, reported under long-standing FRA definitions descending from the 1910 federal law establishing under-oath inputs from all common carriers by rail. As Fig. 1 shows, a consistent trend toward lower numbers which became evident in 1979 continued throughout 1980 despite the fact that inflation was steadily pushing downward the amount of bent metal, ripped up rail, or rebuilding man-hours represented by the threshold damage level of $2,900 in effect during those two years; previous experience with every-other-year adjustment of the threshold for inflation had shown an increase in the number of train accidents for the second year. The annual threshold adjustment in effect starting with 1981 is intended to eliminate this complicating factor in year-to-year comparisons.

The trend demonstrated during the first eight months of 1981 (the latest period for which figures are available) continues its strong downward slope, with every indication that the train accident rate for the whole year will be well below 10 per million train miles, a reduction of more than one third from 1978.

● **Costs down, too.** Reportable train-accident cost totals—which include only direct damage to railroad track and rolling stock, excluding costs of wreck clearing and damage to lading (these were estimated in a 1974 DOT-sponsored study to total approximately the same as the reportable figures) aren't greatly affected by the reporting-threshold in use; the average per accident in 1980 was $32,411, so the inclusion or exclusion of some fender-benders in the $3,000 range doesn't significantly change the overall expense of restoring the track and trains to their pre-wreck state. Inflation just keeps working to raise the totals proportionally.

As Fig. 2 shows, though, during this period of relative traffic stability the reduction in accident damage rates, though bouncing around considerably from month to month, appears to have been doing a little better than keeping up with unit costs. Expressed in the percentage-of-revenue terms we are used to in evaluating progress in the loss-and-damage struggle, the reportable accident-damage cost ratio fell below the 1% level in 1980, a rather impressive improvement from 1.43% in 1976 (the first year for which statistical categorizations were reasonably comparable to today's).

What has been the big factor in this improvement? Starting with its 1979 edition of the annual *Accident/Incident Bulletin* (whose 150 pages or so summarize, cross-correlate, digest, and display the data received in some 80,000 individual reports), the FRA's Office of Safety has broken out reportable cost totals for each of the 165 specific categories into which accident causes are partitioned; previously, only the number of accidents attributed to each was given. Broader categorizations of costs by cause (human factors, equipment failures, track defects, and other) and effect (collisions, derailments and

Fig. 1

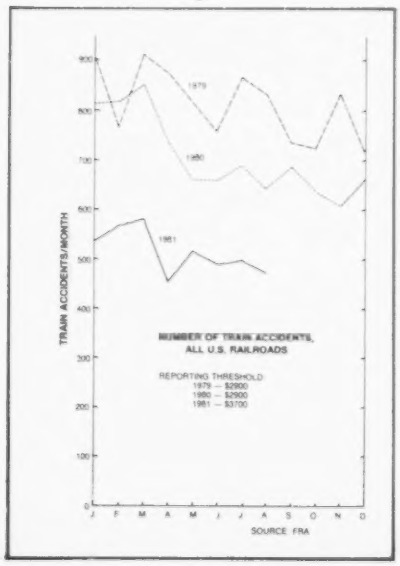
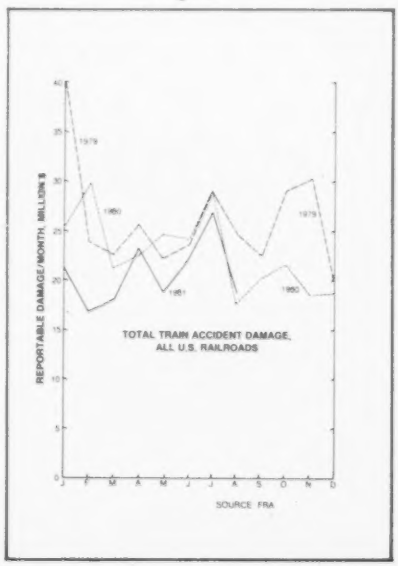
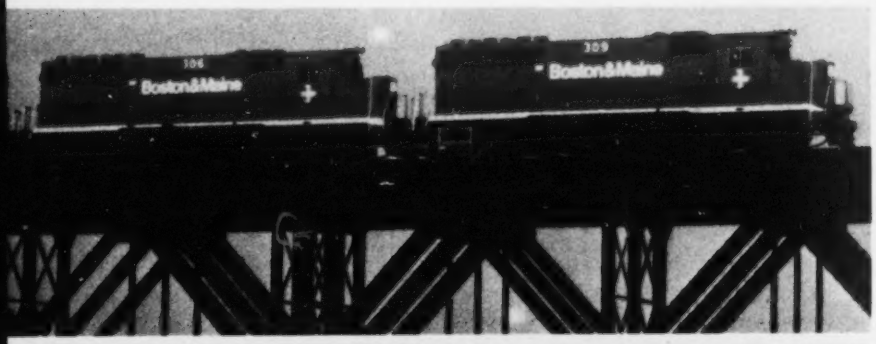
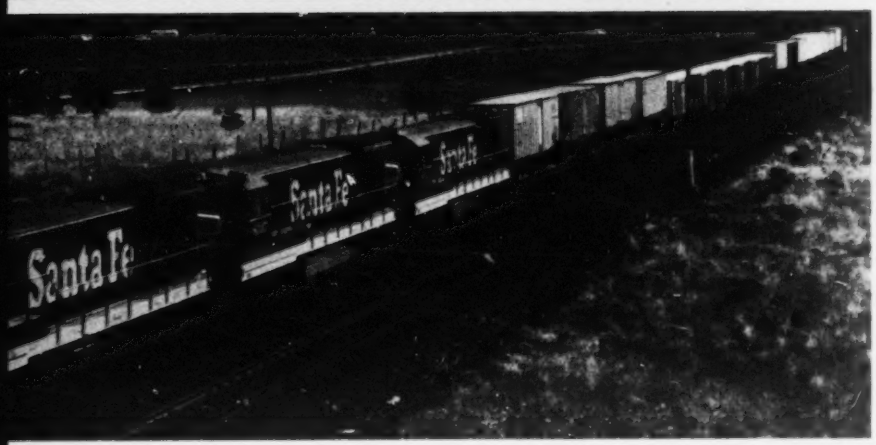


Fig. 2



others?





an equally indispensable "other" which of course isn't the same as the other "other") show enough randomness over the several years for which they have been available to indicate that the current improvement is probably not attributable primarily to any single major factor. While the number of track-defects accidents dropped by 27% between 1978 and 1980, damage attributable to these accidents remained very close to 39% of total damage costs.

● **Casualties decline.** Train and non-train incidents—numerically dominated by highway grade crossing/trespasser and "industrial accident" railroad-employee casualties, respectively—were also down in 1980. This is the first year-to-year decline since unification of railroad and Occupational Safety & Health Administration (OSHA) reporting criteria in 1975 ballooned the numbers by including all medical-treatment incidents, not just lost-time cases, for employee and general-public casualties alike. Outnumbering train-accident casualties by 60 to 1, these incidents can be and are cross-correlated in the Bulletin to tot up precisely who is injured how by what while doing what under which circumstances, to the extent that those hazards demonstrably most important are readily recognizable.

In an effort to make accident figures more comparable with those in other industries and occupations, railroads must attempt to separate casualties occurring on or around rolling stock while it is stationary (now classified as "non-train") from similar "train" incidents with equipment in motion. Either way, getting on or off locomotives and cars stands out, with the 2,165 "train" and 2,222 "non-train" such casualties in 1980 far overshadowing the 957 total for *all* train accidents. Nevertheless, the 23% decline in fatalities and 26% decrease in injuries in train accidents for the first eight months of 1981 is good news.

● **Are all railroads the same?** With the preponderance of railroad employee casualties (more than 70% of the fatalities, 99% of the injuries) *not* associated with train accidents, most of the saving of life and limb from railroad safety programs must come from the development of safe working habits and conditions on and around the trains and tracks, in shops and offices, and working with the machinery, tools and transport it takes to maintain roadway and equipment. This is the sort of program whose relative success is related and recognized for more than 60 years by the highly respected Harriman awards. Administered by the Transportation Association of America and bestowed annually on the basis of combined employee frequency/severity casualty records, these gold, silver and bronze awards for companies of different size categories (as determined by number of employee-hours worked) have over the years been won both by roads with long-standing records of exceptional safety and by newcomers as a climax to turn-arounds from positions at or near the rear of the pack; special awards for year to year improvement recognize companies where things are looking up but haven't reached top levels.

How good is great? Fatalities are rare enough that rates per million man hours worked are volatile for even the largest roads; three-year injury frequency rates for 1980's Harriman gold medal winners show better the possibilities and limits in *consistently* bettering the industry average on railroads of differing size.

Group A (over 20 million man hours/year):

Atchison, Topeka & Santa Fe....57.4% of Class I Average.

Group B (5 to 20 million man hours/year):

Denver & Rio Grande Western....49.4% of Class I Average.

Group C (less than 5 million man hours/year):

Florida East Coast....24.5% of Class I Average.

Apparently the larger the railroad the more difficult it is to achieve equivalent pecentage reductions from the norm. On any system the size of the Santa Fe, maintaining a rate more than 40% below the mean (which translates into eliminating the pain of 4,500 injuries in a three year period) is a monumental accomplishment; the FEC performance can only be compared to something like a career batting average of .600 or so.

● **What about hardware damage?** Baseballs and boxcars do take odd bounces on occasion, and everyone in the business very long has his stories of the minor incident that cascaded into a big pile-up or of the major accident looking for a place to happen which luckily and

illogically didn't find it. Over time, such things must average out. How much difference in accident *hardware* (reportable damage) costs is there between railroads? Do some operating conditions put low accident and damage rates effectively out of reach of today's railroading?

Taking advantage of the FRA's current separation of Class I railroads into three geographical districts (which already entail such overlaps as placing Amtrak, arbitrarily if logically, in the Eastern District and will face bigger problems as the merger process moves onward), Table II puts the last three years' operations in terms of train accidents per million miles and reportable damage per train mile, by district and in the aggregate.

For such large groupings, rates are relatively isolated from the effects of the occasional super-costly wreck and show clearly the decline, outpacing inflation, in the damage per mile rate between 1979 and 1980 for Class I railroads as a whole. With inflation driving up costs per accident, the reduction had to be achieved by cutting down on frequency; leading the way during this period were the railroads in the Southern District, with a 42% reduction in accidents per million miles leading to a 33% decrease in damage per train mile over the two-year span.

For the Class II, Class III, and switching/terminal roads (which in total now run off more than 6% as much mileage as their big brethren since the Class I plateau has been raised to $50 million per year) the fluctuations obscure the situation somewhat but the trend—particularly if adjusted for cost trends—is also favorable.

● **The fluke factor.** For all but the very largest railroads train-accident frequency and reportable damage rates are sensitive enough to individual occurrences to fog the significance of year-by-year changes; Table I therefore sticks to 1978 through 1980 averages. The numbers can still frustrate recognition of exceptional performance by a relatively small road: Were it not for a single expensive wreck caused by vandalism, the Florida East Coast would appear high up in this tabulation of companies achieving a three-year damage per mile rate at least 25% below the corresponding average for all Class I railroads.

Since damage rates per mile for passenger train operations are generally far lower than for freight and switching movements, only railroads deriving revenues primarily from freight traffic have been included; Amtrak consistently achieves a rate around half of the Class I average despite the costliness of its rolling stock while the Long Island one year managed to hold its reportable damage ratio to a gaudy 2.5¢ per mile and has averaged less than 1.5 train accidents per million train miles over the whole period.

So, how do the results compare with those based on employee casualty rates? Generally, they're not a great deal different—the perennial Harriman contenders are well represented, and Santa Fe's average of 56.6% of the Class I average is startlingly (and no doubt somewhat coincidentally) similar to the 57.4% ratio of its injury rate to the corresponding industry average. Rio Grande shows up even better, holding damage to less than one fourth of the Class I average over the period and to an 18.7% ratio for the last two years. Conrail, probably aided by its percentage of commuter-train mileage to some degree, shows up very well in comparison to some other less beleaguered systems of the largest size clustered at or above the industry average.

Table I Nine safety leaders

1978-80 Train-accident damage-rate records

Class I freight railroads, 75% or less of class I average damage/TR. MI.

	Train accidents/ million train miles	Reportable damage, $/train mile
Denver & Rio Grande Western	2.1	.095
Duluth, Missabe & Iron Range	15.5	.157
Elgin, Joliet & Eastern	19.9	.174
Atchison, Topeka & Santa Fe	6.1	.230
Southern	10.2	.242
Norfolk & Western	6.6	.263
Boston & Maine	12.8	.267
Missouri Pacific	7.6	.285
Conrail	15.0	.300
Average, all Class I	**13.0**	**.406**

● **It isn't geography.** You'd expect that the lowest damage ratios would be turned in by prosperous railroads operating in territory conducive to smooth train handling, particularly if their traffic could be handled at moderate speed and with a minimum of those yard and local movements that tend to maximize the chance of collision or derailment while rolling up few miles to swell the denominator in the damage ratio.

But that is not necessarily so. Noted for the fast and frequent trains it must run for competitive reasons on its single-track mains running through (and over) the Rockies, the Rio Grande certainly hasn't achieved its sparkling record by being straight, level or conservative in its scheduling. Since these ratios are on a train-mile basis, it's not likely that a road running extremely heavy trains could look good, especially if these have to be lowered down exceptionally steep grades in the loaded direction—but there's the Missabe Road up near the top of the list. Up there too is its U.S. Steel cousin the "J", whose ratio of three switching miles (at the 6 mph average used in equating yard engine time to locomotive/train mileage) for every mile over the road should make it impossible to achieve a good record.

Southern, Norfolk & Western, Santa Fe, MoPac—prosperous roads all, and you'd expect a good record from the MoPac if only because of the care with which it must handle all that hazmat traffic. But what is the Boston & Maine doing there, in bankruptcy for these many years yet following through from its Harriman gold and silver awards with a damage ratio a full one third better than the average?

The large, the compact, the transcontinental, the urban, the heavy hauler, the fast, the mountainous and all their combinations are represented among the above-average performers. And, since the average must be somewhere in the middle, it follows that some other roads with similar route and traffic characteristics must be *less* successful in getting freight from here to there with a minimum of collision, derailment and other damage to equipment and roadway. The difference isn't trivial, either—Santa Fe's *reportable* damage bill averaged some $10,300,000 a year less than it would had the road had an average record during this period. Some of whatever it takes to achieve a record like that undoubtedly costs hard cash, but it still looks as if there might be quite a contribution to net arising from such performance.

● **How do they do it?** All railroads have safety programs. All operate under the same federal laws and regulations; govern their operations with books of rules that read much the same; share much of the same pool of rolling stock, built and maintained to AAR standards for the most part; adorn their employees' timetables with exhortations proclaiming the prime importance of safety. Yet, results vary, and often far beyond the limits of statisti-

Table II 1978-80 U.S. Railroad Accident, Damage Rates

	1978			1979			1980		
	Train miles, millions	Tr. acc./ millions Tr. Mi.	Damage/ Tr. Mi., $	Train miles, millions	Tr. acc./ million Tr. Mi.	Damage/ Tr. Mi., $	Train miles, millions	Tr. acc./ million Tr. Mi.	Damage/ Tr. Mi., $
Class I Railroads:									
Eastern District	223.7	14.0	.285	227.4	12.1	.309	200.8	11.0	.320
Southern District	124.2	19.5	.543	127.2	14.0	.478	122.2	11.4	.361
Western District	354.2	15.7	.446	363.2	14.1	.471	347.9	13.4	.430
All Class I	702.1	14.9	.412	717.8	12.6	.426	670.9	11.6	.385
Revenue ton-miles, billions		858.1			913.7			918.6	
Class II & III Railroads	49.8	16.5	.333	45.6	14.1	.264	46.8	14.5	.331
Total, all Railroads	751.9	15.0	.406	763.4	12.8	.411	717.7	11.8	.382
Revenue ton-miles, billions		870			927			932	

Source: Train-miles, accident data—FRA ton-mile data—AAR

cally indistinguishable probabilities. Since the externals such as size, traffic, terrain, climate and even prosperity don't seem to correlate very well with the results, are there some identifiable organizational or operational factors common to those roads which seem to achieve better results?

In a negative vein, perusing the 20 or so Railroad Accident Reports annually turned out by the National Transportation Safety Board following its investigations of individual accidents will provide detailed examples of the way communications, regulations, training, equipment, weather, personalities, and human capabilities interact with the laws of physics to permit an accident and determine its consequences. Generally uninhibited by too close familiarity with the traditional ways of running a railroad, reporting often discusses such factors as the distance from the dispatcher's office to the washroom in bringing forward for consideration the sharp focus of hindsight. Is there a common theme? In a broad sense, yes: *the difference between the way things are and the way they're supposed to be*, whether in training, inspection, communication, recording, verification or whatever. The discrepancies are of no consequence—until that one time when they string together.

More positively, how do management, line, and safety officers on three railroads among those with the most consistently outstanding records look at the matter of stopping accidents before they happen and doing it within the framework of productive railroad operations? Informal discussions over a period of many months (a time scale of no importance, given the continuing nature of the challenge) with Rio Grande, Santa Fe and Boston & Maine sought common ideas which shed light on how these roads in their wildly different circumstances have each done so well.

No one claimed to have *the* answer, but among those broad keys to safe operations repeatedly cited (see box) one matter came though loud and clear:

Everyone working on the railroad has to believe that the big boss—and everybody in between—really means it when he says the railroad is to be run safely today, tomorrow, and always.

The hitch in implementing this philosophy, of course, is that valid safety principles have been around long enough to become cliches which read or even sound pretty much the same whether arising from deep conviction or from lip service based primarily on a desire for inclusive derriere coverage. It's not enough to say the right things—they must be *believed*, and, since every employee has the opportunity to set in motion the train of circumstances leading to another entry in the safety statistics, *by each person*. Convincing a vast majority just won't do the job. The road to credibility is long and has too many turnings to map or even summarize, but here are some checkpoints from these railroads.

● **D&RGW: Esprit de corps and housekeeping.** If the Rio Grande ran off its ton-miles at 25 mph on level, tangent track its train-accident damage and casualty rates would still be outstanding; under its actual operating conditions, with main line trackage extending above 10,000 feet and four major summits on heavy-traffic routes with grades that chop the adjusted tonnage rating on a six-axle unit to as low as 950 tons, they are almost unbelievable.

Chief Transportation Officer Larry Parsons and Director-Safety, Rules and Training Roy Eno attribute much of this performance to the close-knit operation possible within an organization of about 3,400 employees where promotion from within over a long period has built up real *esprit de corps* in keeping trains moving over a well-maintained property.

Every personal injury and accident report lands on the desk of President-CEO W.J. Holtman—not an unusual practice for a road of this size. Perhaps less usual are the personal notes that come back asking pointed questions requiring "not just any old answer" and based on the familiarity with the local situations involved that comes from monthly hi-rail inspection tours. "He has a damn good memory, makes constructive suggestions, and loses his cool a little bit if something you say you've fixed still causes a problem." Sharpening the process is the fact that in 1980 the Rio Grande had only 12 train accidents and 196 injury/illness cases to report.

"The willingness of the company to spend money to do something about hazardous situations reported by employees is a real convincer" in getting everyone on board as part of the team to get rid of the lesser problems which represent the difference between average and truly superior performance, observes Parsons. Some items brought up can't practically be eliminated, but there must be some reasonable response to every one.

Rio Grande has had the benefit in recent times of a favorable operating ratio providing the wherewithal to build up the property to high engineering standards matching traffic increases. Close relationships between operating, mechanical, engineering, signal and communications departments in using funds to the best advantage are evident in various ways. Home-road cars are built to more than minimum standards; as a railroad with very little level track on which to park cars, Rio Grande requires hand-brake rigging effective on all eight wheels.

Along and even above its scores of miles of canyon trackage Rio Grande has what may well be a record proportion of slide-fence protection: its own detectors (*IRA*, Nov. 10, 1980, p. 27) used in profusion, guard against such dragging hazards as loose lumber tie-down chains. Along the most difficult sections the railroad makes use of track patrols ahead of trains. "With all our curves, high-silicon rail on the high side helps extend change-out periods, but we still have to run a very greasy railroad and the track patrols may have to make adjustments on the lubricators daily at times," notes Parsons. High-water detectors at some points and a full installation of hotbox detectors, monitored in Denver, are important parts of the scheme.

Rio Grande is organized on the divisional plan—though with only two divisions—with division engineers and safety, rules and training superintendents at both Denver and Salt Lake City. "Yes, our roadmasters probably do have wheel gauges in their back pockets," says Roy Eno. "That's part of the game in finding out what really is the problem so it can be fixed. In general, the divisional organization seems to minimize any 'us vs. them' attitudes."

Annual written rules exams for all—including section men who may be involved in operating track motor cars—have been in force since 1969. "The first year some veterans were coming up with 20% and 30% scores, a situation which by now has long since passed. Emphasis is not on passing tests but on training to insure that rules and the reasons behind them are really understood."

Track-train dynamics is an ever-present concern on the Rio Grande. Track geometry measurements come from visits of the FRA's test car; the railroad has studied problem situations by assembling test trains of potentially troublesome cars and observing their action in trips through some of those difficult canyon alignments. A leased FreightMaster Train Dynamics Analyzer van is on the property as part of an engineman training program which also makes extensive use of schooling available from locomotive and air brake suppliers.

Signal tests are also a continuing part of the picture. Locations are selected with some regard to the train dynamics involved in responding to the test signal indication but there are no signals that are completely off-limits. The actual degree of secrecy of "surprise" tests is always a good question, with such phenomena as coded clicks on the radio not unknown in the vicinity. "The important thing is that no one has failed a signal test in many years—the trains are being operated in accordance with signal indications."

● **Constant communication.** Showing up frequently in FRA and NTSB wreck post-mortems are situations in which inability to communicate with, within or between trains, whether inherent in the system provided or from absence or inoperability of the equipment assigned, has been a factor in failure to avoid the accident. Rio Grande's communication system maintains virtually constant 100% communication with all trains—all engines and cabooses are equipped with "heavy" radio gear; in the event it's down, extra portable sets are provided to the crew so that essentially similar capability is maintained. Special repeater systems provide continuous communication throughout the 6.2-mile length of the Moffat tunnel and within canyon segments previously subject to blackout.

"The buck starts with the chief executive officer and goes right down through the departments to the first-line supervisor who has to get the word to the man out in the field."

—Alan Dustin, President, B&M

Condition of the crew is of even greater importance than the equipment. Rio Grande has relatively few locations or runs where trains crews start their duty away from supervision. "Mark off if you're not in condition" is recognized as a directive whose disregard is likely to result from an unexpected call to duty to a crewman who would otherwise have planned his recreation so as to be in shape to work safely. "You simply have to run the railroad so that such situations don't arise or be prepared to live with an occasional delay if you expect crews to do the right thing." For chronic Rule G, drug, financial or legal problems the Rio Grande has operated a troubled employee program (at a location separate from its headquarters to avoid privacy inhibition) for the last five years.

When you get accidents down to minimal proportions the behavior of non-railroad employees becomes proportionally more important; Rio Grande has found that its security-fenced material-storage areas and emphasis on housekeeping all over the system has helped cut down on vandalism, much of which involved use of heavy objects left handily available by courtesy of the railroad.

● **On the Atchison, Topeka & Santa Fe.** Santa Fe's outstanding safety record goes back a long way. Manager of Safety-System R.D. Shaver traces one aspect of the program to a 1969 decision by Larry Cena (then Vice President-Operations) that the railroad would meet or better safety standards being promulgated by the fledgling OSHA rather than get embroiled in questioning its jurisdiction. Anything less would be a reflection on management.

The most far-flung of U.S. railroads until the relatively recent super-system mergers, Santa Fe has, in addition to a "total management commitment" to safety extending from the top through the line organization to the employee on the job, a safety staff organization with three to five full time officers in Chicago and 22 in the field, one or two in each of the 14 operating divisions, and one assigned to each of the five major shops. Each of the three "Grand Division" offices (Topeka, Amarillo, Los Angeles) has an Assistant to the General Manager for safety. With each yard and train service employee required to take an eight-hour written rules test each year, it is a massive undertaking.

Santa Fe has its own statistical personal injury report form, considered "the best in the industry" by its originators—more narrative in style and, they believe, by its concentration on causal factors more effective in helping all concerned to think about what can be done to eliminate similar accidents. Out on the road the Santa Fe people agree that Dick Shaver is a condition, not a theory—on the road about 80% of the time, he is no stranger to any of the divisions and their officers on his twice-a-year divisional housekeeping inspections. "They would a lot rather see an OSHA man then me," recalls Shaver in discussing the introduction of the new reporting forms.

As on the Rio Grande, accident and injury prevention is a concern to be attacked by all departments together. Copies of Santa Fe's "wire" reports of train accidents go directly to Ray Kaelin's Technical R&D office in Topeka as well as to the engineering, mechanical and safety offices.

Bringing injury rates down further from an already excellent level becomes a matter of developing effective campaigns against particular classes of ac-

Safety checklist

Safety being the absence of accidents, it is rarely possible to identify the specific combination of actions and factors effective in eliminating some specific type of accident, let alone to prescribe a program which will insure an exceptionally safe operation overall. Aspects most regularly cited by officials of roads demonstrating in practice that railroading can be safe include:

1. Bottom-up *perception* of "we really mean it" dedication to safe operation *extending from top management down throughout the organization.*
2. Close and continuous communication among railroad departments in engineering the railroad plant and equipment for safe, efficient operation.
3. Organized and thorough training, testing and recognition program for all classes of employee.
4. Progressive discipline where required, uniformly administered.
5. Frequent inspection of the property, including emphasis on good housekeeping.
6. Capability to communicate to train crews, maintained at all times and places.

Definitions

Train Accident—A collision, derailment, or other event involving the operation of on-track equipment resulting in damages which exceed the reporting threshold.

Train Incident—An event involving the movement of railroad on-track equipment which results in a death, a reportable injury, or a reportable illness, but railroad property damage does not exceed the reporting threshold.

Non-train Incident—An event arising from railroad operations but not from the movement of on-track equipment, which does not exceed the reporting threshold, and results in a death, a reportable injury, or a reportable occupational illness.

Since Jan. 1, 1975, reportability extends, beyond any rail-highway crossing impact or above-threshold train accident (with or without injury or fatality) to include any injury, to employee or any other person, requiring medical treatment beyond first aid.

cident and carrying them out without losing control of previous advances. Emphasis on eye protection started in 1977 brought about a 65% reduction, to the extent that only one eyeball has been lost in the subsequent four year period—quite a record for a 32,000 person organization. Toe injuries have virtually disappeared as a result of 92% participation in the M/W and mechanical departments in a safety shoe program in which the railroad contribution is up to $15 a pair—enough to cover the extra cost for models including metatarsal guards.

Three years ago Santa Fe started sending the National Safety Council's "Family Safety" quarterly magazine to the homes of its employees. Its content is strictly oriented to the prevention of accidents off the job; providing it helps emphasize that the railroad's concern for safety extends far beyond the matter of a good set of safety-record numbers to the prevention of misery whenever and wherever. Does family safety awareness feed back into the breadwinner's performance and attitude on the job? Feedback from this not inexpensive program, which has been highly favorable, certainly indicates that any effect is positive.

Programs can't continually be piled upon programs and remain effective. Have any been phased out? Yes—quarterly safety meetings scheduled for many years have been dropped in favor of a personal contact, around the clock program of safety discussions with one or two train crews at a time. This is expected to be more effective in getting feedback into the system which can not only point the way toward refined procedures but generate further dedication.

What's new? *Safety by Objectives*—a logical derivative of Management by Objectives which "was looked at very closely by management before approval" but is now in place—is showing results, and is reported to be winning the hearts and minds of some in the field who were not initially itching for the thinking it entails.

● **B&M: A matter of priorities.** Santa Fe demonstrates that a large, relatively prosperous railroad can be an exceptionally safe one. What about Boston & Maine, with a gold and two silver Harriman's (in Group B) in the last three years and a per-train-mile damage ratio well below industry averages despite being bankrupt since 1970 and having posted the worst record in its class as recently as 1973?

"The buck starts with the chief executive officer and goes right down through the departments to the first-line supervisor who has to get the word to the man out in the field." That's Alan Dustin speaking, and his philosophy is just the same as that of the presidents of the other winners. Are the tools used differently when you're starting broke and from the bottom?

"We had a deplorable accident and personal injury record. Being broke is no excuse. From the work-habit end we had to make it clear, very cordially to start with, that in everybody's interest many of the practices that had been tolerated were going to have to change. This couldn't happen overnight—it had to work its way down through the staff. In some cases it took formal disciplinary actions but in most it didn't.

"Overcoming the effects of long deferred maintenance had to go by stages. There were many things that simply couldn't be fixed at the time—there wasn't the money. We had to rely on inspection to determine limits for safe operation, make sure everybody was aware of the problems, and see that necessary restrictions were observed.

"Once the program was in place the turnaround in our safety record was more rapid than might have been expected, and it generated its own enthusiasm as things improved. Now we're at a point where if we didn't earn a medal we'd be disappointed."

Dustin sees the physical rebuilding of B&M's plant—primarily the track structure on its main line—as a process very much guided by priorities related to safe operation. Slow orders have been largely eliminated; main line track is rated at Class 3, since the 40 mph which that allows fits present scheduling needs, but much of it is actually in Class 4 condition and could be uprated should higher speeds be useful. Meanwhile there is an element of conservatism in present limits.

B&M's minimum-size safety office (R.S. Currier plus whatever assistance—including volunteer—he can promote) is busy primarily with public-related activities such as fighting the road's serious vandalism problem through school-group presentations and assisting fire departments to learn hazmat-accident procedures. "My knees have healed up under the present management, though—it isn't necessary to beg to get support for those safety-related items that are really essential."

B&M does have spirited safety contests between its departments—frequently won recently by the (freight) Transportation forces despite the inherent hazards of being around moving equipment—with appropriate awards at luncheons and ceremonies "to which Indians are more likely to be invited than chiefs." The continuing challenge, as Dustin sees it, is in keeping up interest in what is basically a "dry and mundane" subject. "We need all the novelties we can think of to keep peaked up throughout the organization. Nobody *wants* to get hurt, but we have to keep pushing over a long period of time for the development of safe working practices to the extent that they become habitual and those lapses which lead to accidents just don't occur."

There's no question on the Boston & Maine where that push originates. ■

Market

CARLOADINGS

Loadings of revenue freight in the week ended Dec. 26, 1981, totaled 254,576 cars, according to the Association of American Railroads. This was a decrease of 31,660 cars, or 11.1%, compared with the corresponding week of 1980. Ton-miles generated by carloadings in the week ended Dec. 26, 1981, are estimated at 11.4 billion, a decrease of 8.9% below the corresponding week of 1980.

REVENUE FREIGHT CARLOADINGS

Commodity	Dec. 26 week	Dec. 19 week	Dec. 12 week
Grain	16,589	23,330	24,384
Other farm products	3,354	4,544	5,717
Metallic ores	15,734	22,624	23,848
Coal	79,867	122,120	127,015
Crushed stone, gravel & sand	4,281	7,903	9,867
Nonmetallic minerals	6,949	11,492	10,763
Grain mill products	9,313	12,529	13,110
Food & kindred products	10,131	14,094	14,523
Primary forest products	6,774	14,743	18,727
Lumber & wood products (except furniture)	3,883	6,162	5,998
Pulp, paper & allied products	12,257	17,801	17,990
Chemicals & allied products	17,485	22,006	22,696
Petroleum products	3,525	5,172	5,081
Stone, clay & glass products	6,889	9,514	11,347
Coke	4,190	5,289	5,787
Metals & products	7,813	11,648	12,048
Motor vehicles & equipment	8,308	13,238	15,109
Waste & scrap materials	4,920	8,544	9,801
Forwarder & shipper assn. traffic	5,865	8,832	9,333
All other carloads	26,332	41,139	43,045
LCL traffic	117	165	264
Total Cars Loaded	**254,576**	**382,899**	**406,453**
Cumulative total,		1981	1980
52 weeks		**21,618,093**	**22,597,816**
Estimated revenue ton-miles (billions), 52 weeks		**915.0**	**918.6**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Dec. 19, 1981, totaled 34,485 cars (1.0% below the corresponding 1980 week) and 63,704 trailers or containers (up 2.6% from 1980). Cumulative volume for the first 51 weeks of 1981 is 1,680,754* cars (up 2.5% from 1980) and 3,060,239 trailers or containers (up 2.8% frm 1980).

*Revised

● *Bessemer & Lake Erie.*—Largest single expenditure in a 1982 capital budget totaling $17,483,000 will be $6,782,000 for construction of an office building at Monroeville, Pa. B&LE will also acquire 752 freight cars (up from 484 in 1981) and three rebuilt locomotives.

● *Canadian National.*—1982 plans call for expenditure of $498 million for road property and terminal improvements; $21 million for acquisition of roadway machines; $12.2 million for shop improvements; $6 million for new intermodal facilities; and $3 million for signal/communications improvements.

● *Elgin, Joliet & Eastern.*—Capital program for 1982 will include purchase of 602 freight cars, rebuilding of 136 cars and one locomotive and expenditures of $240,000 for roundhouse/locomotive shop improvements.

● *Kansas City Southern.*—$19,790,000 fixed-plant improvement program for 1982 will include $11,600,000 for passing tracks, rail relays and other track improvements; $2,500,000 for bridge and culvert work; $2,160,000 for shop improvements; and $1,480,000 for ctc and other signal-system improvements.

● *Freight cars and locomotives.*—The following report has been received from the AAR and the ARCI:

DELIVERED

	November 1981	November 1980	October 1981	Eleven Months 1981	Eleven Months 1980
Built new by carbuilders	1,839	4,574	2,656	38,976	75,206
Built new in RR shops	224	371	244	3,210	5,184
Built new—total	2,063	4,945	2,900	42,186	80,390
Rebuilt	91	7	115	1,053	1,150
TOTAL DELIVERED	**2,154**	**4,952**	**3,015**	**43,239**	**81,540**
Locomotives (new and rebuilt)	45	86	55	655	1,575

ORDERED

To be built new by carbuilders	860	3,230	638	15,522	35,840
To be built new in RR shops	0	700	375	628	3,815
To be built new—total	860	3,930	1,013	16,150	39,655
To be rebuilt	0	0	0	1,100	1,063
TOTAL ORDERED	**860**	**3,930**	**1,013**	**17,250**	**40,718**

ON ORDER AND UNDELIVERED

	December 1 1981	December 1 1980	November 1 1981	Average backlog 1981	Average backlog 1980
To be built new by carbuilders	15,802	51,337	16,685	29,052	76,415
To be built new in RR shops	1,922	4,883	2,146	2,794	5,431
To be built new—total	17,724	56,220	18,831	31,846	81,846
To be rebuilt	47	13	138	270	264
TOTAL ON ORDER	**17,771***	**56,233**	**18,969**	**32,116**	**82,110**
Locomotives (new and rebuilt)	166	472	184	307	834

*Due to revisions of some orders, the December 1, 1981 backlog has been increased by 96 cars.